REMARKS

Claims 1-27 stand rejected. Applicants request reconsideration of the final rejection based on the arguments presented below. Comments from the Examiner extracted from the Office Action dated 06/25/2007 are in small, bold type.

Claims 1-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Zhang et al. in view of Dorn et al. Applicants' claim 1, the sole independent claim of the group, is directed to a method of fabricating a polymer waveguide. The method comprises forming a first polymer film in proximity to a substrate, where the first polymer film comprises a nonlinear optical chromophore. The first polymer film is poled and crosslinked to provide a crosslinked first electro-optic polymer film. A second polymer film is formed comprising a nonlinear optical chromophore in proximity to the first electro-optic polymer film; the second polymer film is poled to provide a second electro-optic polymer film. The first polymer film forms an optically transmissive core. The core comprises a surface that receives light and is substantially orthogonal to the input direction of light into the core. The core also comprises a length, along which light propagates, having a linear dimension greater than either of the two linear axes that define the surface area (*i.e.*, the surface area of the surface that receives light and is substantially orthogonal to the input direction of light into the core).

Applicants have carefully considered the Examiner's contention of obviousness with respect to the references of Zhang et al. and Dorn et al. However, Applicants submit that the rejection is improper for the reasons set forth below.

The Examiner asserts that Zhang et al. has been applied because the reference teaches methods for making a rib waveguide, and that Dorn et al. has been applied because that reference teaches making layers of electro-optic materials:

> **"Admittedly, Zhang et al does not teach a second electro-optic film which would be treated in the manner that the first film (ie core208) is. However, that is why Dorn is applied. Dorn does not show a waveguide in the sense of the instant or that taught in Zhang et al. However it is respectfully submitted that Dorn provides a teaching to one of ordinary skill in the art how to sequentially pole different electro-optic layers to arrive at a desired refractive index profile."**

Applicants have repeatedly argued the fundamental point (within the context of the 35 USC §103(a) rejection) that a person of ordinary skill in the art, having the device described by Zhang et al., would not look to Dorn et al. for a method to produce Applicants' claimed

waveguide for at least two reasons: 1) the technologies and the purpose of each respective disclosure are completely dissimilar, and 2) there is no motivation in either reference to combine any part of the concepts presented therein. In other words, Zhang et al. do not suggest that making successive layers of electro-optic films will enhance their waveguide device, nor do Dorn et al. suggest implementing their optical switch as a waveguide. In fact, in the latter case, as Applicants have previously argued, the Dorn et al. reference actually teaches away because it is an optical switch designed to reflect light, not confine it to an optically transmissive core, which is one purpose of Applicants' device.

Beyond that, the Examiner's statements that:

> **"Dorn provides a teaching to one of ordinary skill in the art how to sequentially pole different electro-optic layers to arrive at a desired refractive index profile."**
>
> **and**
>
> **"The reason why one of ordinary skill in the art would look to Dorn would be to form a slab waveguide, which has more than one electro-optic layer to allow for selective tuning of the waveguide so that such would be tailored for desired use."**

are not presented in the proper context to be used in any way against Applicants' methods for making a waveguide. Dorn et al. attempt to solve the problem of creating a refractive index *grating* such that incoming light can be reflected *away* at an angle which is dependent upon the characteristics of that grating. The grating is controlled by virtue of electrodes implanted near, or within the electro-optic layer(s). The refractive index profile that the Examiner references is one where light passes *through* each successive layer. Thus, Dorn's teaching "how to pole different electro-optic layers to arrive at a desired refractive index profile" may be relevant to a person designing an optical switch of the type conceived by Dorn et al., but *not* to a person designing a waveguide. And to that end, the Examiner has explicitly stated

> **"Indeed it is understood that the device of Dorn is not a waveguide."**

The fundamental question regarding the appropriateness of the Examiner's obviousness rejection is whether a person of ordinary skill in the art of making waveguides would look to Zhang et al. *and* Dorn et al. for a method that would facilitate the creation of Applicants' claimed waveguide:

> **"...the rejection proposes to employ the deposition and poling method taught in Dorn to the formation of a waveguide."**

Dorn's disclosed methods provide an operational device for reflecting light away from the optical switch. Every method or embodiment taught in Dorn is done with the purpose of maximizing the efficiency at which light is *reflected*, not transmitted. There is no mention of any advantage to minimizing the reflection or confining the light to a central core, as Applicants' claim recites. Also, nowhere does Dorn et al. mention an electro-optic layer that is anything but a flat surface, like a sheet; Applicants' core comprises a length, along which light propagates, having a linear dimension greater than either of the two linear axes that define the surface area. Therefore, a person having ordinary skill in the art of making waveguides would not look to Dorn et al.

Claims 1-27 as presented are in allowable form and such action is requested. It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

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Respectfully submitted,

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